THE METAMORPHOSIS OF THE ANIMAL AND ITS REALIZATION ON THE BIODYNAMIC FARM

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IT IS VERY IMPORTANT TO THINK about the role of the animal on our farms, as well as in the landscape as a whole. On the way to Amherst I saw three beautiful black Dexter cows at Brookside Farm. This is an enormous change, since this land has been deserted by animals for many years. It is a great loss to the landscape—the landscape doesn't feel the same without animals running around. At Brookside they have returned, and they are so beautiful with their pure black coats standing out against the white snow. I had some of these Dexters for a while in Germany, besides a fairly large Holstein herd. Unfortunately, there was a bit of trouble between the huge Holstein bull and the tiny Dexter bull, so I had to hand the Dexters on to another biodynamic farm nearby and just concentrate on one breed.

What are these Dexters doing at Brookside Farm? They have their own small field and barn, and they are being fed with surplus roots from Ian Robb's 1987 vegetable campaign. They have carrots, parsnips, beets, and turnips. What does that mean for those animals? It means that they start to have a sort of sense perception of that place. Cattle especially have their strongest senses in their digestive system. Now merely by eating these roots they get to know that part of the farm where the vegetables are grown. By eating the hay, they get to know the hay field. They taste it. They digest it. Even without walking over the whole farm, they get to know the place more intimately than we do when we walk around looking at different parts of the farm. Then next year they graze on the fields and leave their manure there, and whatever is left over is composted and also spread on the land. Something very special is happening there. Something is changing. These animal beings create a certain space. Before, when I visited Brookside, I saw the vegetable fields, the hay fields and the forest, and then the fence of the neighboring farm.

Why is there a border? This is simply a legal accident. There is no natural border. One farm flows into the other. They share the same birds and the same insects. The wild creatures don't see the boundary at all. However, the moment you have cows (or other livestock), you begin to create a real space on the farm. They take into their digestive system just what is produced within the borders of the farm, because they cannot wander onto the neighbor's land—or if they do so, it is not appreciated by the neighbor. They come to know every inch of their own farm. Some parts are more wet, other parts are more dry. Every part has a different flora. When they eat the products of this land, the digestive system focuses the forces on this particular farm, gives an answer to the fodder they eat. The digestive system mirrors the farm. First they

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mirror what they take in, and then they give an answer in the manure that has accumulated over the winter. They provide a real answer. They create the farm. It wasn't there before. The space is only given through the animals themselves.

If a single bird lives in a garden, it creates the space of the garden. With deer, the space is much larger, but they create a space as well. When animals appear, a soul element enters the picture. The animal adds an element of feeling to the landscape. It is important to emphasize this because the animal is disappearing from so many parts of the country. In New England the number of dairy animals is going down permanently. When people visit, they don't realize at first what is missing. You have a beautiful landscape with hills and forests and foliage, which is so beautiful in autumn. But people are not so attracted by foliage if there are no farms in between. The whole landscape is shaped by animals. You can see this in the north where the farms have been abandoned and the forest grows right down to the river bottoms. The road winds along the river, but you cannot see the landscape anymore. You can't even see the hills and the mountains.

These animals give an answer to the land that they graze upon. They individualize it, especially if the farm doesn't need to take in manure from the outside. And in the process the animals themselves are changed. The whole physiology of the animals (and their offspring) answers to the soil of the place where they are raised. The land shapes their whole organism. In the future, one should observe what happens on the farm —to the whole vegetation—by having these animals. In ten years Brookside will have its own Dexter herd, which will be distinct from any other herd of Dexters. It is important to observe these changes. It really forms a subject of future scientific research to determine how a herd changes by virtue of the place it inhabits. With domestic animals we have creatures that are changeable to a very large extent. We tend to see animals in a very fixed way, but especially in the domestic animal a tremendous metamorphosis can take place.

Metamorphosis was Goethe's great concept as a natural scientist, his great observation in plant and animal life. Though phenomena change, there are certain fundamental patterns from which all the different plants and animals are derived. His way of looking in nature was scientific, but it was also artistic. He could see in the detail the whole and in the whole the detail. There is an interesting anecdote about Goethe's first visit to the cathedral in Strassburg. Goethe entered the cathedral with a friend who told him that originally the builder had intended to complete the second tower. Goethe asked him how he knew and the friend replied that the architectural plans had been discovered. When Goethe remarked how close examination of the roof indeed showed that two pinnacles were missing, the friend asked Goethe how he knew. Goethe replied, "The cathedral told me." That is very interesting. Out of the whole shape, he could see the plan of the builder. This was also his approach to the realms of nature.

Later, while gazing on a sheep skull near Venice, Goethe saw in the loosened skull bones a pattern in the way these bones were joined together that gave him a key to their origin. He could see how all the bones were related to the vertebrae. We have in the vertebrae the archetype of all bone structure. The skull bones, the rib bones, the hips are all transformed, metamorphosed vertebrae. If you take the trouble to sculpt the vertebrae of an animal, you can see how the vertebrae start very small at the tail and then grow thicker. The hip bone appears, then the smaller ribs, then the larger ribs, and so on until the final vertebra is changed in to the back parts of the skull. You can observe how the vertebrae are transformed in one area after another up the spine. Goethe pointed out that there is an essential principle—one canon—to all these vertebrae. He said that all the bones of the body are a metamorphosis of the vertebrae. He was very happy to find a common principle for the higher animals, and—when he discovered the intermaxillary bone in the human jaw—to find that the human being was enclosed with this principle as well.

Rudolf Steiner, who based his outlook on Goethe's view of nature, added something very important to this. He showed that the metamorphosis of the spine comes under three strong impulses, for otherwise animals would have only an endless spine. He showed that the spine comes under the influence of three systems—the digestive and limb system, the rhythmic system, and the nerve-sense system—and that, in the human being, these systems are enclosed in a certain harmony.

The principle of metamorphosis is very convincing, but normally you cannot really see it occur. In this respect the farmer is in a privileged position. The domestic animals are so plastic that something of this metamorphosis can be observed. I first read about this in an article by my friend Dr. Nicolas Remer. I was overwhelmed that this principle could be observed in domestic animals. According to how we raise them, they will change. Dogs, for example, are rooted in only one or two original lines of descent. Or look at the great variety of horses, brought

about largely by human breeding. The Arabian horse, for example, has soul faculties that are inherited. It is a trait of this breed that if you fall off, it will stop. It is born with this faculty. In an inheritable way the Arab horse is also totally attuned to the voice, not to sight. They can react to the slightest modulation of the voice.

In the eighteenth and nineteenth centuries, many races of farm animals were developed, especially in England. The English were masters in cattle, pig, and sheep breeding, breeds which differed from country to country. You can still see these breeds at the Royal Agricultural Shows. I saw at least fifteen different breeds of cows, for example. In the late eighteenth century they didn't have genetics, but they had a real feeling for the form of the animal. They had real imagination. If they wanted a cow to have a certain set of traits, the imagination was so strong that they could bring together the right male with the right female. The breeds didn't come about by chance, but were a product of human imaginative capacities.

There are certain laws and certain directions in the changing of the animal races. They were found by a German breeder, Herman von Natusius (1809-1878), who worked in connection with English breeders. He was a nobleman who owned a number of farms on different types of soil, both rich and poor soil. He imported many precious breeds of sheep and cattle from England. At the time short-horn was the dominant dairy animal, just as today the Holstein dominates.

One of the techniques breeders used was extreme in breeding. There was a famous short-horn bull named Comet, which gives an example of these breeding techniques. Comet came about in the following manner. The farmer took his best cow and bred her to his best bull. Then he bred the bull-calf back with his mother, got a heifer, and bred her back with her father. Comet was the offspring.

In his outlook, Herman von Natusius was very close to Goethe's point of view. He wanted to discover the laws of nature by looking at the forms of the farm animals. He found that you have two fundamental types, the coarse and the fine. You find these types in every race, and you find races that are finer or more coarse. With the coarse type you have a big, long, narrow head, wide but shallow ribs, a short but downfallen croup, and long, strong limbs with large bones. The coarse type is late maturing. The fine type has a short, broad head. The Arabian horse is a creature of this type. Shorter ribs, but expanding like a barrel, with a long, broad croup, short, fine limbs, with less bone and more meat. They are early maturing.

The art of farming is to bring the animal in the direction you want, not only by the way you breed, but in the way you feed. You find there is a certain relationship between these types and the soil and plant life that they live on. You find the coarse type on sandy dry soils and in sunny mountainous regions. There is a special flora connected to this type. When the Mongolians came to Europe, they were riding fantastic small horses with long faces. These horses could ride 100 miles a day. No horse today could do that. It would fall over dead. They didn't run on grain, either, but on tough, hard grasses. They were steppe animals. The hard-steppe grasses created these horses. All the horses that ran from Mongolia to Germany were of the same constitution, the same type.

Von Natusius was interested in how the constitution of animals comes about. The constitution of an animal is the sum of all its physical attributes and forces. If we look at all the animals that come from a dry, sandy soil from the alpine regions, we can say that in these animals the forces of silica are dominant. Silica, drought, warmth, and intense sunlight come together to create a special animal. You also have a special flora in these regions. This is something that we have to judge on our farms: what kind of flora would grow best on this land? What kind of food do we

need for these animals? We have a distinct kind of habitus between plants from a wet, marshy lowland and a high, arid mountain region. This is the same sort of observation that Goethe made when he crossed the Alps and went into Italy. He saw the same species of plants in the Alps that he saw in Weimar, and they were totally different. What is the difference? Plants in dry, high regions have long, hard stems. Leaves become smaller. Sometimes you only find a rosette which hugs the ground and the flower stalk rising from the rosette. The flowering is enormous at such altitudes, with strong fragrance. In the lowlands one finds that the same species have thick, broad, dark green leaves with far less fiber and fragrance. There is a metamorphosis of the same plant type from the lowlands to the high mountains.

The journey from Germany to Italy helped Goethe to conceive the idea of metamorphosis of the plant, which he developed before he conceived the metamorphosis of the animal. The archetypal animal gave him far more trouble. By observing the transformations of the plant through different regions, he suddenly saw that there is one ruling principle, one canon in the plant world, where every single plant is just a special manifestation of one canon. When he described this experience to his friend Schiller, Schiller replied, "This is just an idea, something you have in your mind." And Goethe replied, "Then I see my ideas." For Goethe it was not an idea. It was more real than the single apparitions of phenomena.

In terms of soil, we find limestone in the cloudy, marshy lowlands, silica in the sunny, dry heights. Von Natusius had farms of both types and he brought in breeding stock to each farm, stock with both coarse and fine constitution. The coarse stock, you may recall, tended toward late maturity. He observed, however, that if he brought the coarse herd to the highland farm after only a few generations (ten to fifteen years), he achieved an earlier maturity that was inheritable. He also made observations about feeding practices. A ewe gave birth to twin lambs, but died after nursing the lambs for fourteen days. Von Natusius then raised one lamb on the milk from another sheep, while the other was weaned early and fed hay and oats. After four weeks both lambs were slaughtered and he discovered that the rumen on the lamb fed on fodder was six times larger than the lamb fed on milk. The reticulum was ten times larger and the villosae were four times larger. These results showed how differently an animal develops if we change the diet.

For animals, the period of early feeding is like school. We can keep the young animal on milk for a long time or wean it early and put it on grain for a short period of its life. It doesn't last much longer than maturity—with a bullock or heifer, no longer than a year and a half. The only way we can educate these animals is through their digestion. If you have the coarse type and you want to keep this constitution, you have to feed them hard hay and not much grain. The grazing has to be harder. If you want a finer type, then you have to feed more milk, grain, and protein-rich grasses. The Arabs even feed dried figs and dates to their horses. If you want a beef animal, you need a fine type. The percentage of usable meat is far higher than a coarse type. On the other hand, the meat of the fine type is not so red as the coarse type.

On the one side, the farmer doesn't want to get a completely one-sided animal; on the other, he doesn't want to disturb the general pattern of the farm by introducing food from outside. It took me thirty years to understand what this meant, what it means to establish the boundaries of the farm organism. We begin to get a feeling for this through the interaction of plant, soil and animal. We create a disturbance when we bring in food which the animal is not used to. By eating the local flora, the ruminants develop a bacterial fermentation pattern specific to the land they live on. By bringing in fodder from outside, we disturb this pattern. If we continually change and disturb this pattern, this produces animals with a shorter life span and which are more prone to disease. If we create a farm organism where the farm shapes the animals and the animals shape the farm, then we come to a higher level of performance than we ever had before.

Trauger Groh established Temple-Wilton Community Farm in 1985, one of the first two community supported agriculture (CSA) farms in the U.S., with Lincoln Geiger and Anthony Graham and, along with Steven McFadden, authored *Farms of Tomorrow Revisited: Community Supported Farms, Farm Supported Communities* (available through SteinerBooks (steiner.presswarehouse.com).

Photos: Hawthorne Valley Farm landscape in Ghent, New York, and sheep at Sun Dog Farm in Blairsville, Georgia (Darby Smith).

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